WHAT IS CLAIMED IS

1. A microporous membrane comprising (a) a hot-melt adhesive, (b) an engineering plastics, (c) optionally a tackifier and (d) optionally a filler.

2. The microporours membrane of claim 1, further comprising a tackifier.

3. The microporous membrane of claim 1, further comprising a filler.

4. The microporous membrane of claim 1, wherein the membrane can be bound to battery electrodes by heat-activation at a temperature of from about 35 to about 125°C under a pressure in the range from about 0.5 to about 100 psi.

5. The microporous membrane of claim 4, wherein the membrane can be bound to battery electrodes in about 0.01 to about 250 minutes.

6. The microporous membrane of claim 5, wherein the pressure is from about 1 to about 30 psi.

7. The microporous membrane of claim 1, wherein the microporous membrane has a porosity from about 25 to about 75%.

8. The microporous membrane of claim 1, wherein the membrane has a porosity of from about 45 to about 70%.

9. The microporous membrane of claim 1, wherein the hot-melt adhesive is present in an amount of from about 2 to about 50% by weight.

10. The microporous membrane of claim 1, wherein the engineering plastics is present in an amount of from about 20 to about 90% by weight.

11. A method of making a microporous membrane comprising the steps of (a) dissolving hot-melt adhesive, engineering plastics, and optionally a tackifier in an organic solvent, and then adding a pore former and optionally a filler to form a homogeneous slurry, (b) casting the slurry as a film onto a support substrate, (c) evaporating the solvent from the membrane, and (d) washing the resulting microporous membrane with water to form a microporous membrane.

12. The method of claim 11, wherein the pore former is a water-soluble substance.

13. The method of claim 12, wherein the water soluble substance is an alkaline metal halide, or a granular alkaline metal sulfate.

14. A battery comprising (1) at least one positive electrode, (2) at least one negative electrode, (3) an electrolyte, and (4) a microporous membrane comprising (a) a hot-melt adhesive, (b) an engineering plastics, (c) optionally a tackifier and (d) optionally a filler.

15. The battery of claim 14, wherein the microporous membrane further comprising a tackifier.

16. The battery of claim 14, wherein the microporous membrane further comprising a filler.

17. The battery of claim 14, wherein the at least one positive electrode is a lithium-ion positive electrode.

18. The battery of claim 14, wherein the at least one negative electrode is a lithium-ion negative electrode,

19. The battery of claim 14, wherein the electrolyte is a lithium-ion electrolyte.

20. The battery of claim 19, wherein lithium-ion electrolyte is a liquid lithium-ion electrolyte or a polymer lithium-ion electrolyte.